eCoastal as a Decision Support System

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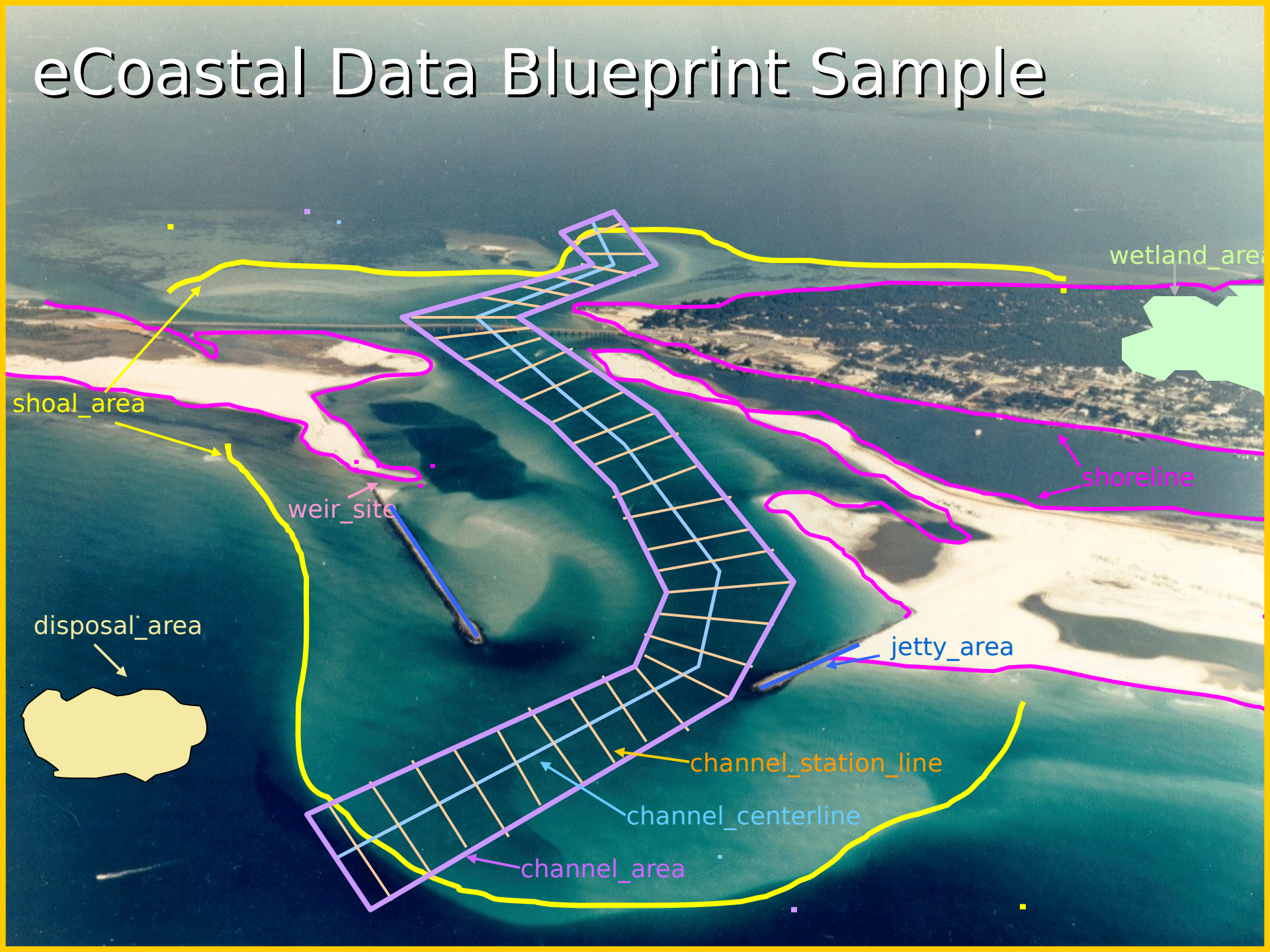
Why use a GIS for Coastal Engineering?

- Develop a sediment budget for the region
- Facilitate the sharing of data
- Institutional knowledge
- Assorted tools for coastal engineers, scientists, and managers.

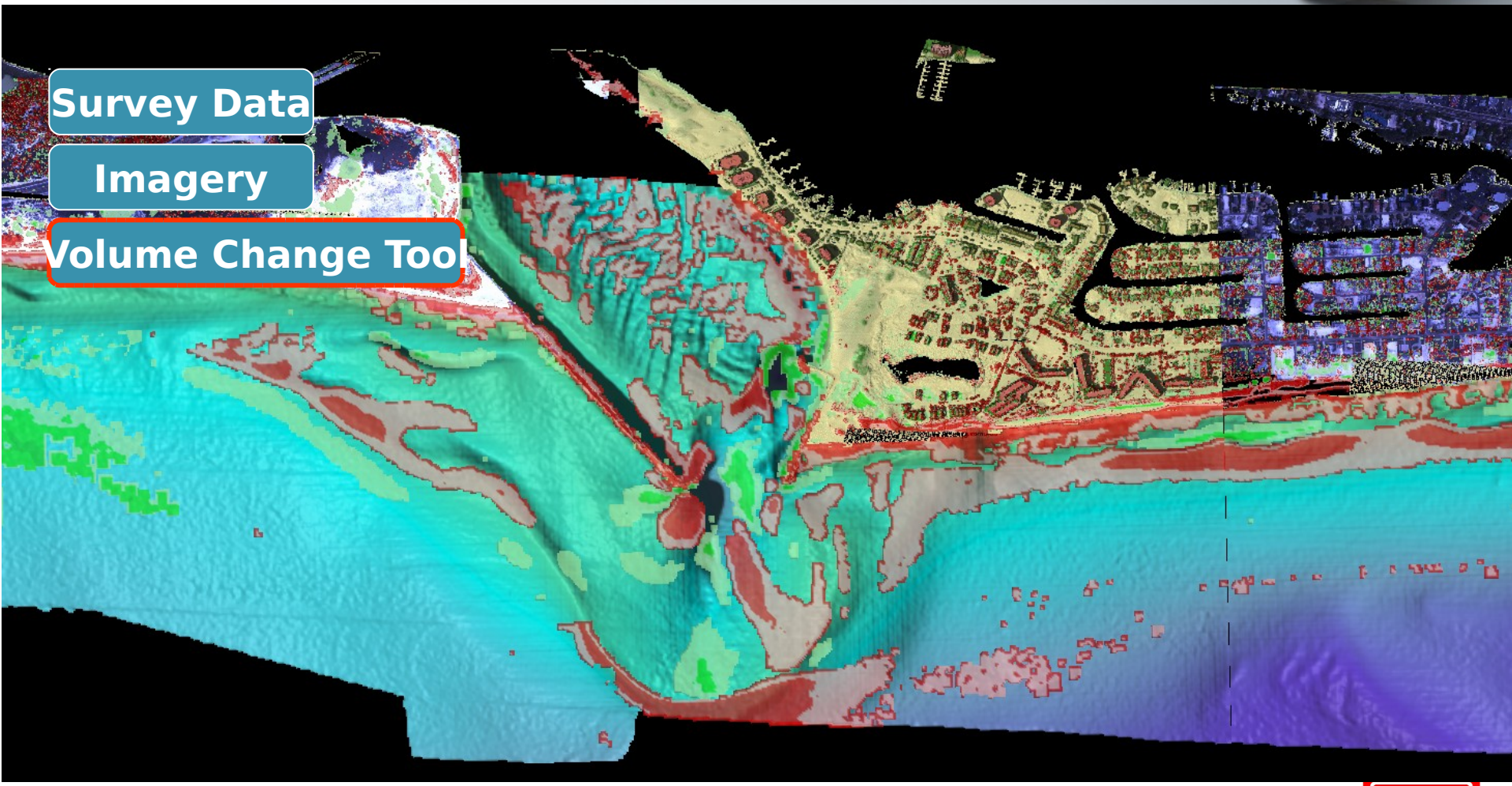
What is eCoastal?

- An **enterprise GIS tool** to support coastal engineering and management practices.
- It is designed as **data management & access solution** to provide information for effective planning and prediction of regional and local coastal processes.

eCoastal Data Blueprint Sample



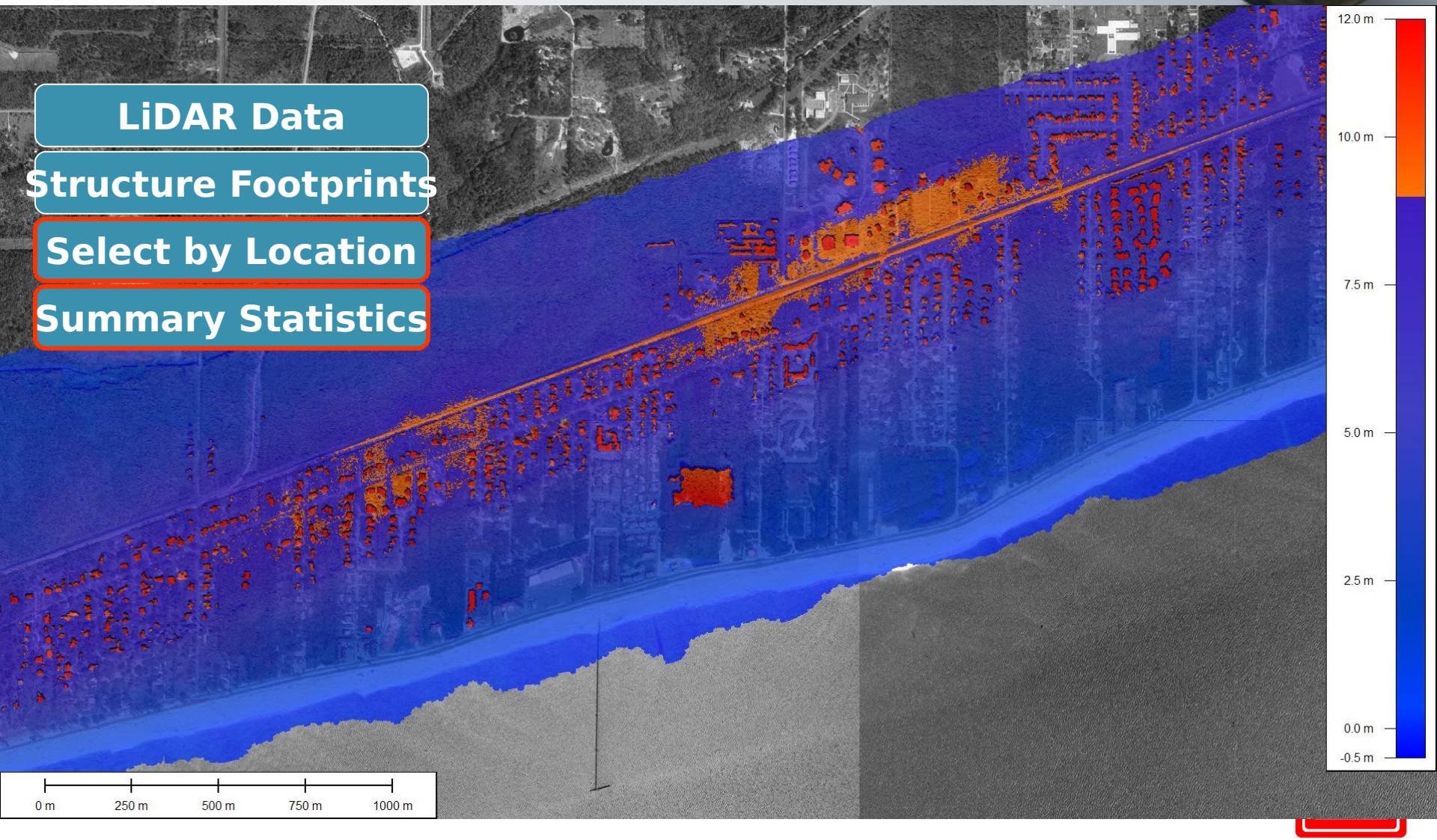
Engineering Change Analysis



Hurricane Ivan Impacts / East Pass, Destin

eCoastal

Calculating Cost with GIS



Environmental Change Analysis

2005

2006

- Imagery
- Hyperspectral Data
- ‘Swipe’ Tool

2005 – 2006 Land Use Change / New Orleans Lak

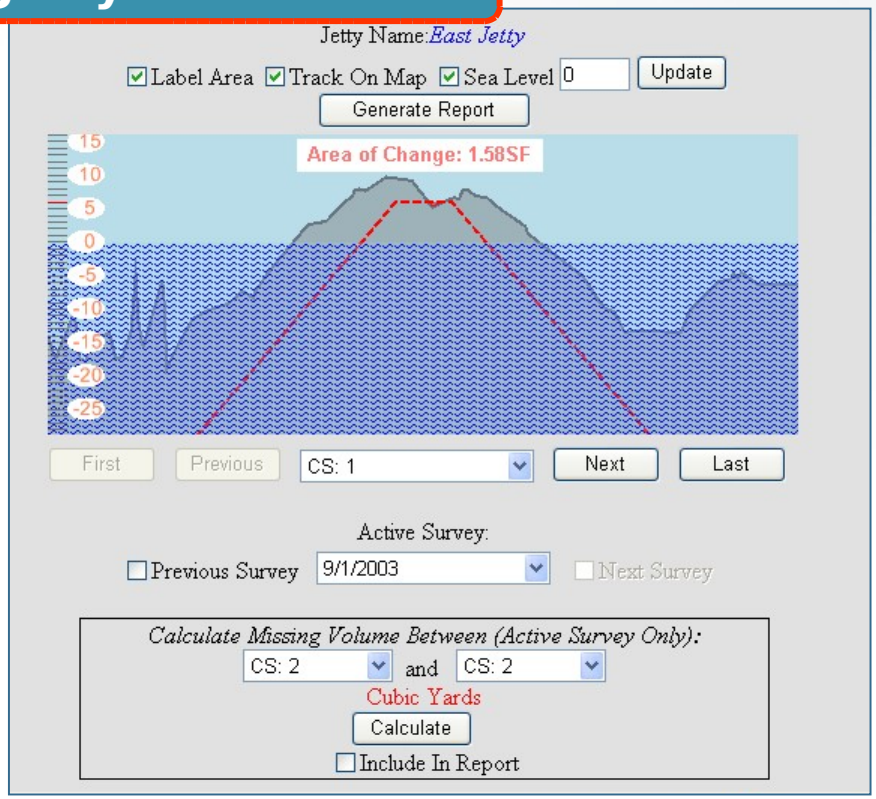
eCoastal

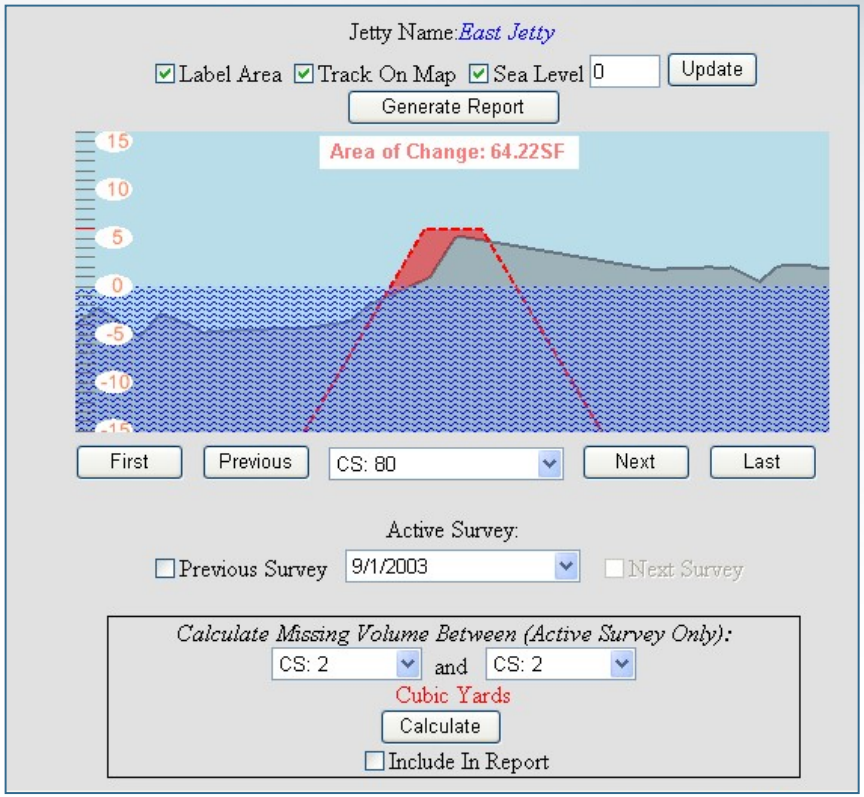
Operations – Condition Reports

Survey Data

Structure As-Built

Jetty Condition Tool





Structure Condition Index Tool

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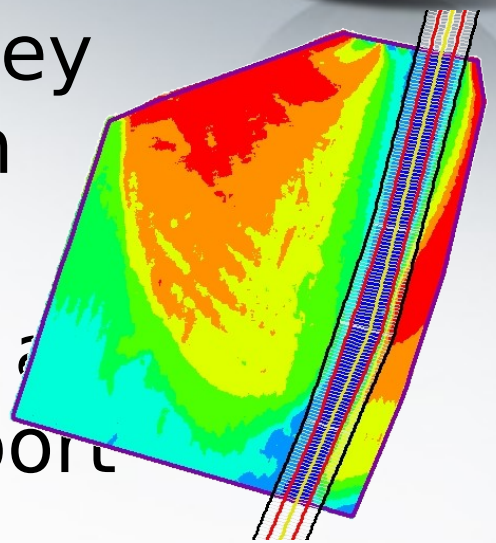
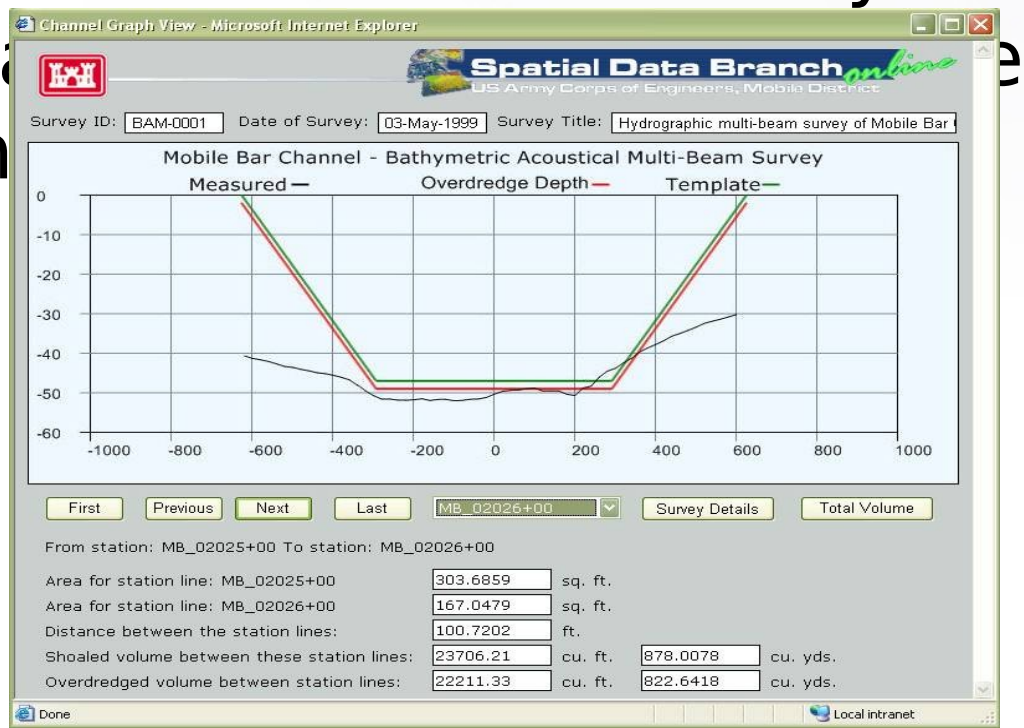
Operations – Condition Reports

- The Profiler tool allows a user to overlay a profile of a set of survey data against the channel design template.
- Total volume for the survey can a
  be ca eport
  form





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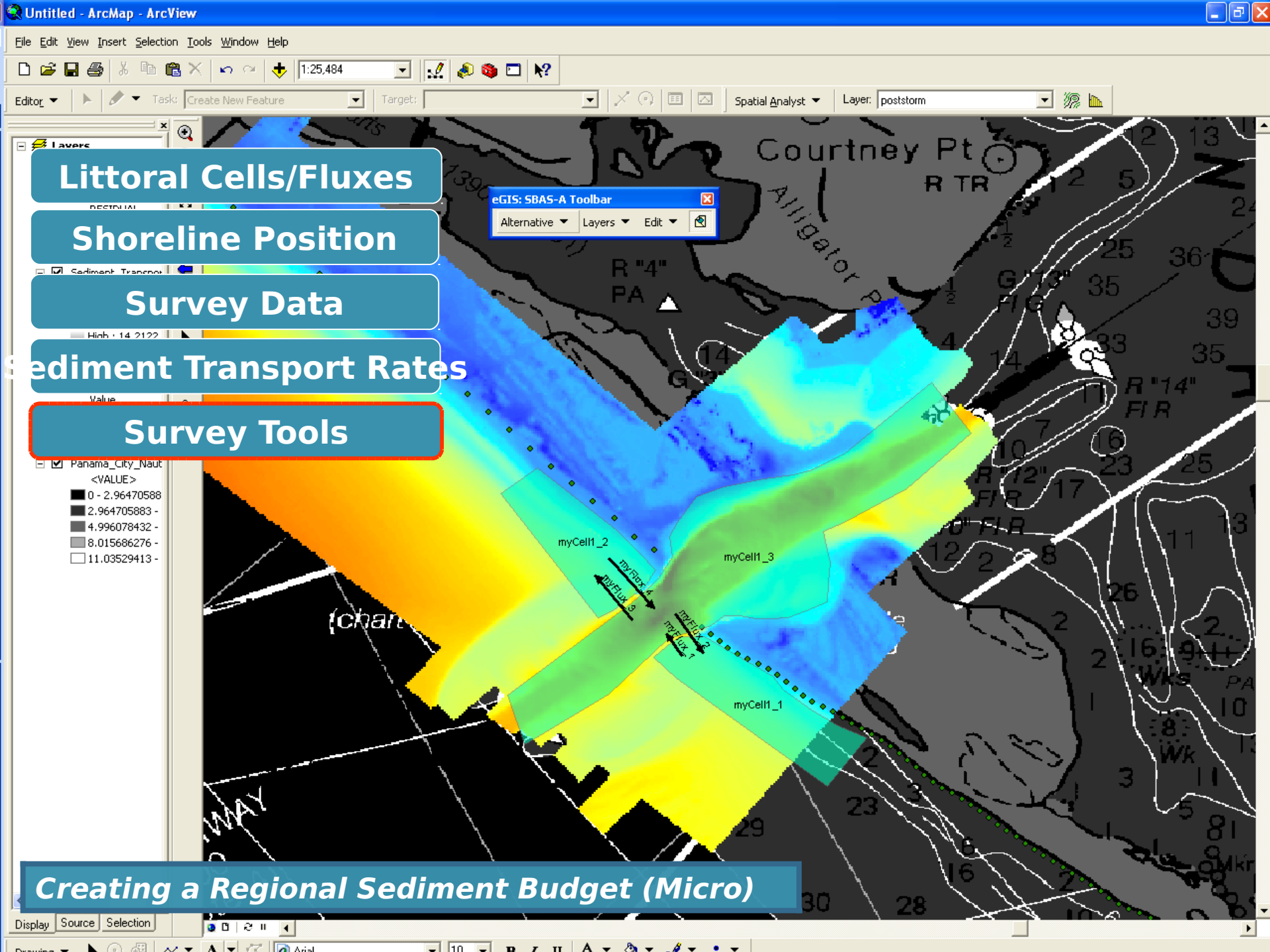
Untitled - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help
1:25,484
Editor
Task: Create New Feature
Target:
Spatial Analyst
Layer: poststorm
Littoral Cells/Fluxes
Shoreline Position
Survey Data
ediment Transport Rates
Survey Tools
eGIS: SBAS-A Toolbar
Alternative
Layers
Edit
Courtney Pt
R TR
Alligator
R "4"
PA
R "14"
Fl R
myCell1_2
myCell1_3
myCell1_1
myFlux_4
myFlux_3
myFlux_2
myFlux_1
Panama_City_Naut
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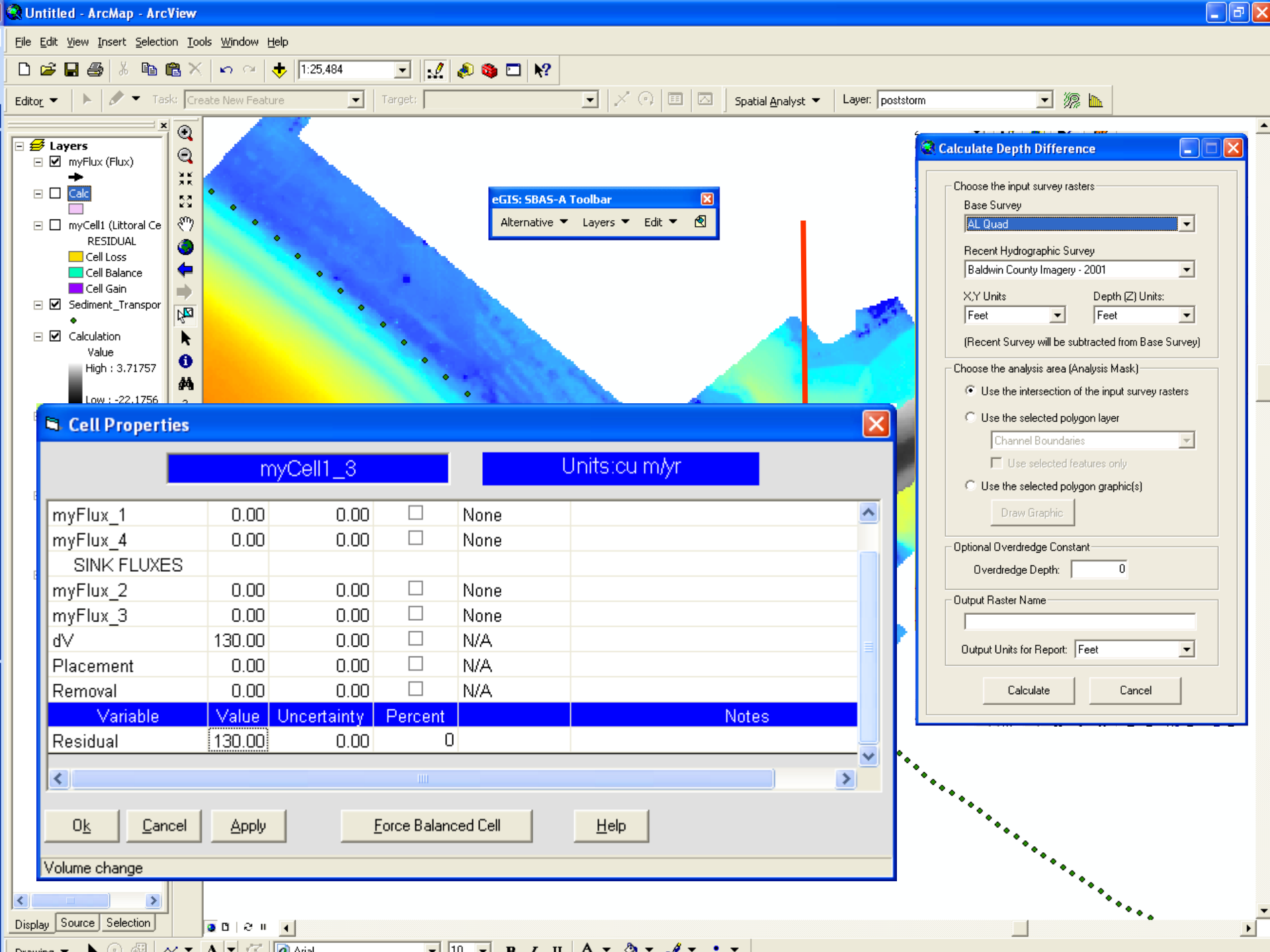
0 - 2.96470588
2.964705883 -
4.996078432 -
8.015686276 -
11.03529413 -
Creating a Regional Sediment Budget (Micro)
Display
Source
Selection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File Edit View Insert Selection Tools Window Help
1:25,484
Editor
Task: Create New Feature
Target:
Spatial Analyst
Layer: poststorm
Layers
myFlux (Flux)
Calc
myCell1 (Littoral Ce
RESIDUAL
Cell Loss
Cell Balance
Cell Gain
Sediment_Transpor
Calculation
Value
High : 3.71757
Low : -22.1756
eGIS: SBAS-A Toolbar
Alternative
Layers
Edit
Calculate Depth Difference
Choose the input survey rasters
Base Survey
AL Quad
Recent Hydrographic Survey
Baldwin County Imagery - 2001
X,Y Units
Feet
Depth (Z) Units:
Feet
(Recent Survey will be subtracted from Base Survey)
Choose the analysis area (Analysis Mask)
Use the intersection of the input survey rasters
Use the selected polygon layer
Channel Boundaries
Use selected features only
Use the selected polygon graphic(s)
Draw Graphic
Optional Overdredge Constant
Overdredge Depth:
0
Output Raster Name
Output Units for Report:
Feet
Calculate
Cancel
Cell Properties
myCell1_3
Units:cu m/yr
myFlux_1 0.00 0.00 None
myFlux_4 0.00 0.00 None
SINK FLUXES
myFlux_2 0.00 0.00 None
myFlux_3 0.00 0.00 None
dV 130.00 0.00 N/A
Placement 0.00 0.00 N/A
Removal 0.00 0.00 N/A
Variable Value Uncertainty Percent Notes
Residual 130.00 0.00 0
Ok
Cancel
Apply
Force Balanced Cell
Help
Volume change
Display
Source
Selection

Questions?

http://eCoastal.usace.army.mil

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